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Respectfully Submitted,

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(12) United States Patent

Yamazaki et al.

(10) Patent No.:

US 7,633,471 B2

(45) Date of Patent:

Dec. 15, 2009

(54)	LIGHT-EMITTING	DEVICE AND	ELECTRIC
	APPLIANCE		

Inventors: Shunpei Yamazaki, Tokyo (JP); Jun

Koyama, Kanagawa (JP); Toru Takayama, Kanagawa (JP)

Assignee: Semiconductor Energy Laboratory

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(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 463 days.

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(2006.01)

Field of Classification Search 345/83,

345/84, 92, 98, 100, 204, 76, 80, 82, 211; 438/488, 149, 159, 146, 147, 213; 257/57,

257/72, 350, 59; 315/169.3, 169.2; 349/143;

See application file for complete search history.

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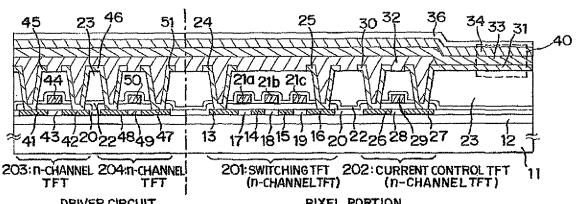
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ABSTRACT (57)

An inexpensive light emitting device capable of displaying a bright image and an electric appliance using the light emitting device. In the light emitting device having a pixel portion and a driver circuit formed on one insulating member, all of semiconductor elements for the pixel portion and the driver circuit are formed by n-channel semiconductor elements, thereby enabling the manufacturing process to be simplified. Each of light-emitting elements provided in the pixel portion emits light in such a direction that most of the light travels away from the insulating member, so that substantially the whole of the pixel-forming segment electrode (corresponding to a cathode of an EL element) is formed as an effective lightemitting area. Therefore, a low-priced light-emitting device capable of displaying a bright image can be obtained.

30 Claims, 16 Drawing Sheets



DRIVER CIRCUIT

PIXEL PORTION